

# ABSTRACT

An enhanced method and device are provided to treat  
5 atrial fibrillation or inhibit or reduce restenosis  
following angioplasty or stent placement. A balloon-tipped  
catheter is disposed in the area treated or opened through  
balloon angioplasty immediately following angioplasty. The  
balloon, which can have a dual balloon structure, may be  
10 delivered through a guiding catheter and over a guidewire  
already in place. A fluid such as a perfluorocarbon flows  
into the balloon to freeze the tissue adjacent the balloon,  
this cooling being associated with reduction of restenosis.  
A similar catheter may be used to reduce atrial  
15 fibrillation by inserting and inflating the balloon such  
that an exterior surface of the balloon contacts at least a  
partial circumference of the portion of the pulmonary vein  
adjacent the left atrium. In another embodiment, blood  
perfusion is performed simultaneously. In another  
20 embodiment, tissue contacted by the cryoablation catheter,  
undesired to be ablated, is protected against damage by a  
separate heating step.